FEBRUARY 1963

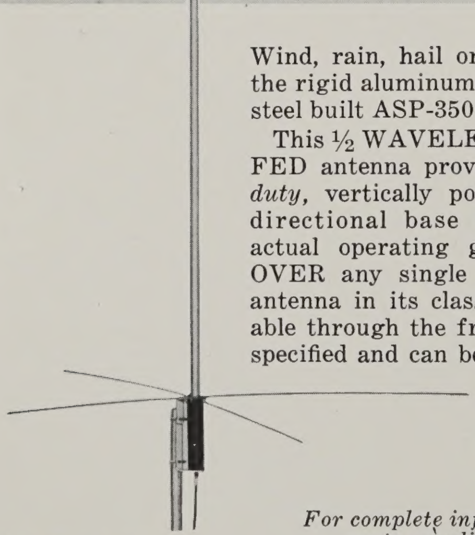
Communication HORIZONS

More PGVC Report page 4

ASP-350

(30-50 Mc)*

the antenna specialists brand base antenna



Wind, rain, hail or snowstorms, the rigid aluminum and cadmium steel built ASP-350 bows to none.

This ½ WAVELENGTH END-FED antenna provides a *heavy-duty,* vertically polarized omni-directional base station. The actual operating gain is 6 db OVER any single element type antenna in its class. It's adjustable through the frequency band specified and can be tuned easily to operating frequency in the field.

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SPLATTER

from **JIM KYLE**
CH Managing Editor

Some months ago (last May, to be exact) we published a thought-provoking item by Ted Merrill titled "Where Are We Going?"

Now in the rush of editing, we failed to connect up the ideas Mr. Merrill put forward with some of the comments on the UHF reallocation petition — until a letter from Mr. Merrill arrived this week.

Just in case you don't know him, Ted Merrill is a former president of the Western region, National Mobile Radio System, and was a principal author of NMRS testimony in the 1959 allocation hearings. His thoughts as expressed below are the outcome of years of practical experience — and though they may read as if they are "off-the-cuff," they aren't.

I must point out that the opinions are solely those of Mr. Merrill and do not necessarily reflect those of CH, its editor, or its publisher. However, we *do* believe every reader of this magazine ought to study them, think about it, and then come up with his *own* opinions. Then let us know!

Here's the letter, edited slightly to make it fit available space but with no change of meaning:

"Dear Jim:

"You need a 'Letters to the Editor' column. The January issue reports that the National Association of Broadcasters, in opposing the petition to reallocate TV channels 14 and 15, has charged mobile radio is 'inherently wasteful' of frequency space.

"These should be the most frightening words your readers have seen in years . . . because they are *TRUE* — and no doubt will be picked up by others! No legislative or regulatory body in the nation could consciously endorse division of a natural resource into equal amounts without regard to population and geographical need.

"If the first words of NAB did not scare the pants off the complacents, the rest should: '(NAB) suggested a reexamination of policy looking towards establishment of a national common-carrier radio system to replace *all* "private" mobile radio systems, modeled after the existing wire-line common-carrier networks'! (note the *all*).

"Who's to worry? Not EIA. Not PGVC! Both of these are concerned with technical aspects and nothing in NAB's statements claims any lessening of need for equipment or engineers. Who *is* to worry are the heads of communication departments and the many hundreds of individuals with personal fortunes at stake in a two-way radio business.

"APCO had best slide off its high-horse and embrace the business community and its interest in mobile radio. NCUR would do well to welcome the truckers and the contractors, and NMRS can wake to the fact that 'interconnection' is the subject of the most classic stall in the history of two-way radio.

"The frequency assignment system which centralizes all power in Washington and is abetted by a handful of sanctimonious associations who speak for their own good is as efficient as the ouija board and as modern as the tom-tom.

"Other federal agencies with executive position equal to the FCC — such as the Federal Power Commission, the Interstate Commerce Commission, and the Civil Aeronautics Board — have found it possible to consider matters in places other than Washington. It is not likely that FCC could ever justify regional investigations for such a piddling industry as mobile radio.

"A few weeks ago this writer proposed that the time was ripe for the formation of a National Users Association with a paid representative in each area who would undertake frequency coordination and other chores toward the end that adequate elbow room would be found for each and every user. It was suggested that this could be financed by the licensees themselves.

"The idea died quickly because no one seemed to think that the licensees would be willing to pay for such a thing. Perhaps they won't, but it does appear that they should be given their own chance to decline.

"Any half-baked investigation at all will show that at the present time the bulk of mobile radio licensees couldn't care less who holds the license. The one thing they ask is *reliability*, which becomes more and more impossible to get as system is piled upon system. These people will be fat prospects for the convenience and simplicity of coming national and regional common carrier systems.

"In 1959, in Docket 11997, it was suggested more than once that the present system of allocations was wasteful. A positive proposal was put forth urging the creation of a "for hire" radio service, with limitations (patterned after the Broadcast Service)

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Communication HORIZONS

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Communication Horizons Magazine is read monthly by nearly 10,000 two-way communication engineers, technicians, installers and users. Detailed circulation breakdown available upon request.

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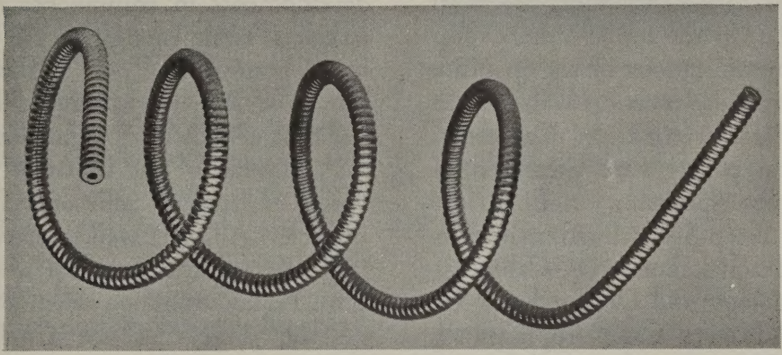
new from Andrew

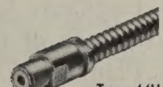
ALL COPPER FOAM COAXIAL CABLE



Andrew Foam HELIAX provides a low loss, trouble free connection between transmitter and antenna or other RF components and requires *no pressurization*. Corrosion resistant copper corrugated outer conductor incorporates superior electrical characteristics with added strength and installation flexibility.

Produced by a continuous manufacturing process, Foam HELIAX may be supplied in lengths up to several thousand feet. It is available from stock in ½ and ⅞ inch diameters. End fittings are easy to install, requiring no special tools.

Cable Fittings for Foam Heliax



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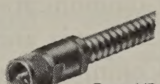
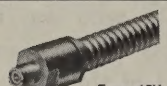
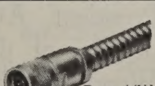


Type 44P
Type UHF plug for ½″ Foam Heliax

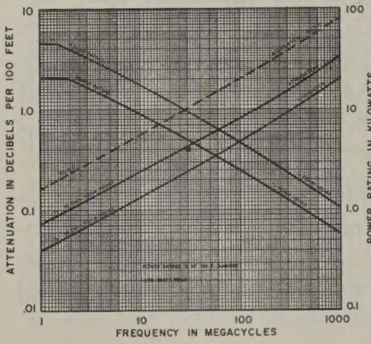


Type 45U
Type UHF jack for ⅞″ Foam Heliax



Type 44W
Type N jack for ½″ Foam Heliax

"Ready to Install" kits with fittings attached are available from stock.



Low loss Foam polyethylene and high conductivity copper for both conductors results in minimum attenuation.

Complete specifications are covered in Bulletin 8484. Write,

Andrew

More From the 13th PGVC Technical Conference:

Spectrum Squeeze

by Robert E. Brooking
Contributing Editor

On December 6 and 7, 1962, approximately 400 members and guests attended the 13th National Conference of the Professional Group on Vehicular Communications of the Institute of Radio Engineers. The meeting was held at the Disneyland Hotel in Anaheim, California. Seventeen technical papers were presented in addition to two guest speakers: Dr. Eberhardt Reclitin, Director, Deep Space Instrumentation Facility, Jet Propulsion Laboratories, California Institute of Technology and Dr. Frederick G. Suffield, Head, Advanced Laser Applications, Hughes Aircraft Company.

All of the land mobile services were represented, with an excellent turnout from the various Public Safety Radio Services. More than 700 people visited the Exhibit Area and saw some of the products of Aeronautical Electronics Corp.; Amperex Electronic Corp.; Andrew Corp.; Antenna Specialists Co.; Columbia Products Co.; Communication Products Co.; Cushman Electronics, Inc.; Decibel Products, Inc.; DuMont Laboratories; General Electric; Gertsch Products Inc.; Hallett Manufacturing Co.; I.T.T.-Kellogg; Kaar Engineering Corp; Mobile Radio, Inc.; Motorola Inc.; Miniquip, Inc.; Northrup Corp.; Ovenaire, Inc.; Outercom Electronics Corp.; Prodelein, Inc.; Radio Corporation of America and Secode, Corp.

Kaar and Amperex displays are shown in this view

Many of the exhibitors showed their latest developments in equipment: transmitters and receivers small enough to be carried or worn by a person; low cost two-way equipment; miniature selective calling units and even the addition of secondary signalling functions.

A number of the technical papers were devoted to making additional uses of our frequencies. All were well received. However, the high spot of the technical sessions came at 3 p.m. Friday afternoon when a panel discussion on the subject of the Crowded Frequency Spectrum took place.

Originally William Weisz of Motorola had been selected to chair the session. However, his absence from the country made a replacement necessary and Robert Peth of Motorola took his place. Victor G. Reis of Bethlehem Steel Co., who is Chairman of the National Association of Manufacturers' Committee on Manufacturers Radio Use; Robert E. Brooking, Communications Engineer, City of Burbank, California and Chairman of the Public Safety Communications Planning Committee, Associated Public Safety Communications Officers, serving as a replacement for Harvey O. Platt, President, APCO who was unable to attend because of illness in his family; Grandt E. Woodside, Chief of the Frequency Utilization and Requirements Branch, Office of the Chief Engineer, F.C.C.; and Richard Gifford, General Electric Communications Products Department, Manager of Engineering, made up the panel.

Mr. Peth explained the position of the E.I.A. Land Mobile Communications Section and why the decision had been made to ask for reallocation of TV channels 14 and 15 rather than some other portion of the radio spectrum. He acknowledged that while these 12 megacycles would not solve the shortage of spectrum space presently plaguing the land mobile services, it did offer a means of obtaining needed space without the long delay which would of necessity face the land mobile users in attempting to obtain a portion of the spectrum which is presently occupied.

Channels 14 and 15 are not in use in any of the large metropolitan areas where the shortage of frequencies in the land mobile services is the most critical. Thus, these frequencies would be available as soon as released by the Commission. Further, with the passage of the "All Channel TV Receiver Bill," it is essential that the reallocation take place before production begins on the new TV receivers.

Mr. Peth concluded that there must be further future action to obtain more spectrum space for the land mobile services but this action will take time. Meanwhile, he called on all users of vehicular communications to support the action of the E.I.A. group, even though they might feel it will not solve their problems, because it does represent a necessary action.

Mr. Reis explained that growth in the use of the Manufacturers Radio Service was beginning to cause "doubling up" and "tripling up" of systems. In addition, he pointed out that in many instances manufacturers have more need for 150 Mc frequencies than for 450 Mc frequencies. However, the frequencies in the 150 Mc band are shared with Forest Products and Petroleum.

This sounds like a good idea but it doesn't always work out that way: for example, in Pennsylvania, all three services operate systems in the same area. This is leading to problems. The manufacturers accept and use radio as a needed tool in their operations, but limited access caused by too many systems in an area can negate its usefulness.

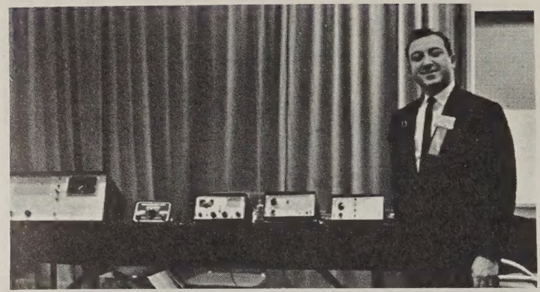
Mr. Reis went on to point out that while the manufacturers are eligible to use the Business Radio Service, this answer is even less satisfactory because of the overcrowded conditions in this service. He also mentioned that the manufacturers have a need for channels to use with low power equipment for many plant operations, *i.e.*, between a crane operator and a man securing the load. These devices must be on frequencies other than those used for normal mobile operation to be of any value. At present there are none in the Manufacturers Radio Service. He concluded that present actions of the Commission will not solve our problems and that the Commission must take "major action" to find additional spectrum space for the land mobile users.

RCA exhibit featured new "Super Carfone" equipment.

Your editor commented: "When Docket 14503 is finalized, the last space available to the land mobile users below 500 Mc will have been split. The growth of the Public Safety Radio Services in the last few years may not have been as dramatic as some of the other land mobile services but this is only because it is the oldest and therefore was already well established. Police Radio is now over thirty years old. Despite this fact, we can predict that there will continue to be growth in the need for Public Safety Radio channels. For example; the population of the United States increased from 151 million in 1950 to 179 million in 1960. By 1970 our population will reach 215 million. Where we have people, we have problems.

"We recognize that the other users of the land mobile portion of the spectrum are not using their channels for frivolous purposes. Their needs and uses are most genuine and proper. There may be areas which will never suffer from the frequency shortage problem but in the big centers of population, the story is different. There isn't a single frequency in the 450 Mc band available in the Public Safety or Business Radio Services in the Los Angeles metropolitan area. The only unassigned frequencies in the 150 Mc band are 15Kc splits and these cannot be used without creating harmful interference to existing users.

"We have all been defending our position on a kilocycle by kilocycle basis. Now the time has come when more spectrum space must be made available to the land mobile users, public safety and non-public safety. There is no spectrum space suitable for land mobile use which is not currently assigned. Therefore it must be



reallocated from some other service to the land mobile users. Unfortunately for us, the service with the greatest amount of unused spectrum space is also the one with the greatest popular appeal."

Mr. Woodside commented that: "Disregarding any major reallocation in the 25-890 Mc portion of the spectrum, the land mobile services are left with developing ways of making more efficient use of the present three bands, 25-50 Mc, 150.8-162 Mc, and 450-470 Mc." He continued that while the 450-470 Mc band may not be ideal, it offers the greatest area at present for mobile expansion, but added: "such land mobile growth in this band is being stunted by the amount of fixed service operations." The Commission's figures show approximately 10,000 fixed stations licensed in the 450-470 Mc mobile band. In the public safety, industrial and domestic public services, the number of fixed station authorizations exceed the number of base/mobile station licenses."

Mr. Gifford, a member of the Joint Technical Advisory Committee, rounded out the panel. He stated: "We are operating in an atmosphere so restrictive that we are reaching a point of stagnation. Radio spectrum management is a national concern and the government has the responsibility for doing something about it. At the present time, we are spending eight cents per capita on managing the radio spectrum — a national resource."

Mr. Gifford added: "There should be continued pressure to establish a central office in government to handle these problems. President Kennedy has taken steps to correct this condition by naming Dr. Irvin Stewart to the post of Director of Telecommunications Management in the Office of Emergency Planning, but he is without funds to do the job. The House Sub-Committee turned down the request for an appropriation. It would cost the people of the United States an additional seven cents per capita to do the job in the proper manner."

Mr. Gifford then showed a chart of the radio spectrum. He stated that the frequencies between 25 and 450 Mc possess characteristics making them most suitable for mobile operation; a single voice channel requiring a minimum of bandwidth and having propagation characteristics satisfactory for use where the transmitting or receiving location cannot be selected. The frequencies from 2000 to 10,000 Mc offer the best choice for point to point service; they have the ability to provide a large number of channels since the band-width required can be adequately accommodated without using excessive amount of spectrum space.

Between these two areas lies the 450 to 2000 Mc portion of the spectrum which could be termed a quasi-mobile band. Narrow bandwidth, low channel capacity point to point systems could be accommodated here; but it further offers an ideal spot for broadcast services; the transmitter in all cases being fixed. While the licensee does not control the receiver placements, it is possible to employ antennas and placement to provide reliable reception. The mobile unit cannot do this.

Mr. Gifford concluded by emphasizing the need for improved spectrum utilization. "There was a time when problems could be solved by moving higher in the spectrum. Today we can no longer move higher and also we cannot split the channels further. We have reached the point where the channel widths authorized are necessary to provide for the modulation requirements. Reallocation is the only solution remaining."

Mr. Gifford also mentioned that: "We are polluting the radio spectrum. The noise level at 150 Mc is increasing 3 db each ten years. If we expect to continue the use of our land mobile radio systems, steps must be taken to reverse this trend."

The question and answer period which followed was finally stopped after 5 p.m. because time had run out. One generally reached conclusion of the majority of the panel was that the land mobile radio users may find it necessary to get Congress interested in the problem of the crowded spectrum since the efforts of the land mobile users thus far have failed to produce a satisfactory solution.

Radio-Controlled Rangers

A new two-way radio system is helping the National Park Service to handle its increased work load in Shenandoah (Virginia) National Park more efficiently as the visitor travel count pushes near the 2-million mark for the first time in history.

One of the longest National Parks east of the Mississippi, Shenandoah stretches 80 miles along the crest of the Blue Ridge Mountains. While most of the terrain is about 2,000 feet in elevation, many peaks rise 3,000 to 4,000 feet.

Tying the park's headquarters at Luray, Va., together with outlying visitor centers, camping areas, ranger stations, and entrance ways represented a difficult communications problem.

The U.S. Department of the Interior awarded General Electric's Communication Products Department, Lynchburg, Va., a contract to engineer and install a new communications network which now serves the park from end to end.

From Shenandoah's northern tip at Front Royal to the southern end of the Skyline Drive at Rockfish Gap, the unique system provides a radio "backbone" enabling park officials to expedite both routine and emergency work.

Eight base stations and thirty transistorized mobile radio units link every ranger station and all maintenance areas in a repeater arrangement which provides communications coverage to all key areas in the park.

Two frequencies are used in the new network, replacing the single frequency concept the Park Service previously used in this location. Base stations, cars and trucks have a Channel A "local" channel, which they use to converse with park rangers and maintenance men in their own vicinity. They flip to a Channel B "repeater" when they want to talk to the other end of the park. Two repeater points are used to get the needed coverage—one atop Hogback Mountain and the other atop Trayfoot Mountain.

Base stations in the systems are all 50-watt units. One is located at Park Headquarters near Luray. Others are spaced along the Skyline Drive at Front Royal, Dickey Ridge, Piney River, Thornton Gap, Big Meadows, Simmons Gap, and Rockfish Gap. A base station is also located in the Shenandoah Valley at Grottoes. The repeater stations at Hogback and Trayfoot vote electronically on the strongest signals received and automatically relay messages transmitted from outlying locations calling headquarters.

Prior to installation of the new system, complete coverage of the park was virtually impossible. If personnel in vehicles at the southern end of the park wanted to converse with the northern end, they had to travel to fixed telephone locations. This cost them time and wasted miles. With the new backbone system, park rangers and maintenance men can talk farther than they did before and retain their mobility.

If an accident or other emergency occurs, mobile units can contact headquarters immedi-

DIRECTING A NATIONAL PARK covering 300 square miles takes considerable flexibility. R. Taylor Hoskins, Superintendent of Shenandoah National Park, uses two-way radio for administrative control.

ALMOST CONSTANTLY ON THE MOVE, Assistant Park Superintendent Kittredge A. Wing stays in touch with both field and headquarters activities by radio. Small transistorized unit under dashboard is tied in with a repeater system, permitting him to talk to any point on the Skyline Drive.

ately. This is particularly important in fire patrol work and fire detection.

Along the Skyline Drive, there are no fire towers. Forest fire detection is dependent upon Park Protection personnel patrolling the Skyline Drive and valley roads on the east and west sides of the park. The Park Service has cooperative agreements with state fire wardens and fast communication permits quick investigation of the numerous smoke calls received from citizens in the surrounding areas.

U.S. Department of the Interior's Administration of Shenandoah National Park is headed by R. Taylor Hoskins, Superintendent. Park protection, law enforcement and maintenance activities are under his direction.

With camping on the upswing this year, the new radio system is a boon to the park's operations. It has helped to hasten completion of the new camping facilities, including 185 new units at Big Meadows.

The system operates on a 24-hour basis. Even when key rangers are off duty and at their homes, two-way radio stations in their residences link them to headquarters.

The radio in the car is on virtually all the time, both when the vehicle is in motion on the Skyline Drive and while it is parked and the park officers is checking trailer camps and lodging areas. Previously, this caused battery problems for the vehicle. The car's battery began to run down after 6 to 12 hours of use. With the new equipment, this poblem has been eliminate. G-E Transistorized Progress Line mobile radios in the vehicles have a built-in battery-saving arrangement. This permits the radios to be left on standby, ready to receive calls, when the car engine is off, without running the battery down.

Maintenance trucks as well as park ranger vehicles have transistorized units. If an operator parks a vehicle at night and forgets to turn the radio off, the vehicle's battery is protected. Because the radio draws only four-hundredths of an ampere of current in the standby position (as negligible as a continuously-operating dashboard clock), the unit could be forgotten for weeks at a time.

In regular practice, however, the vehicles are never forgotten, nor are the radios in them. They are an indispensable part of the Shenandoah National Park's operational routine, protecting life and property along the forest-covered slopes.

Caution--Battle Ahead

From our vantage point, it appears that non-broadcast radio as we now know it may be facing a monumental battle in the coming year. The spectrum squeeze is getting tighter on an exponential-increase basis; the action to obtain a small measure of relief by asking reallocation of TV channels 14 and 15 produced a reply from the National Association of Broadcasters suggesting that a better answer **might** be to scrap our whole system and turn it over to a nationwide common-carrier network!!

But this was merely a preliminary skirmish; no real battle lines have been joined yet. At this point, it's too early to foretell just what **will** happen. About the only safe prediction is that **something** which will probably have a substantial effect on your own involvement with non-broadcast radio will be the result.

Whatever the developments, and whatever the outcome, your only sure way to be fully informed on the situation as it progresses is through the pages of COMMUNICATION HORIZONS. Washington Bureau Chief Bob Tall is on the job 24 hours a day, seven days a week, when the news breaks. Contributing Editor Bob Brooking helps **make** the news, then gives you the full report. Washington Attorney and Contributing Editor Jeremiah Courtney provides the legal background. The whole CH team works together to keep **you** informed of what's going on with your industry.

But news isn't all we offer. We're scouring the nation for the best and latest in technical articles, system reports, and applications ideas. Our "Sy-Pep Paper" program is still in effect, although newsbreaks have kept the papers away from the pages for several months. The Showcase lets you know what's new in the way of equipment, and Milestones keeps you up to date concerning people, places, and things.

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Transistorized Ignition Now Available

One of the biggest advances in ignition systems since Kettering's 1910 (conventional) system now adds power, mileage, and economy to any automobile, truck, tractor, boat, bus, or race car. It also reduces radio noise.

Called the "Sleptronic Transistorized Ignition System," it came about after five years of electronic research in the production of heavy-duty power diodes and transistors — plus the design of the special F-12 Coil by the Bill Slep Company of Ellenton, Florida.

Available in 6 and 12 volt models, the complete system weighs less than four pounds and is readily mounted on all types of combustion engines.

What'll it do?

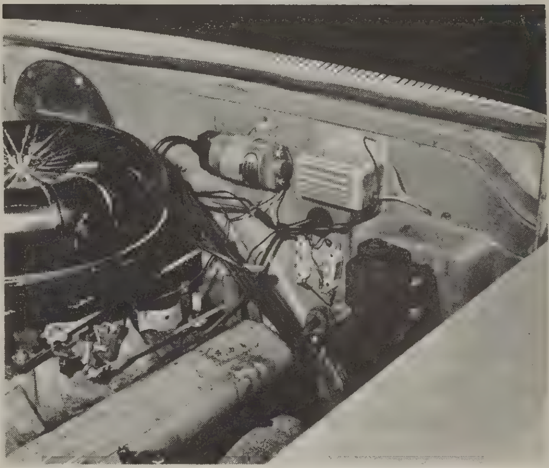
First, the Sleptronic delivers more output voltage at higher rpm's than any conventional system, completely eliminating voltage fall-off. Reduction in coil inductance permits current to reach its maximum value rapidly, thus maintaining constant output. This advantage pays off in two ways — greater acceleration at higher speeds and greater fuel economy.

Another big plus is less breaker point wear. Sleptronic coils switch current with no internal wear on moving parts, increasing point life up to 15 times normal wear. Transistorized systems showed no wear or erosion on breaker points after 50,000 miles of test driving on cars and trucks. The same points were estimated to have a life of more than 100,000 miles before replacement would became necessary.

Not adversely affected by temperature extremes, Sleptronic systems provide easier starting and more efficient gas consumption.

Cold weather starts by conventional systems keep points in contact as much as four times as long, resulting in "Blued Contacts" (because of the tinted oxide residue). The oxide itself, of course, is a poor electrical conductor.

Increased spark plug life follows as a result of Sleptronic's ability to ionize spark plug gap under a wider range of operating conditions. The higher available voltage means that spark plug gaps widened by erosions can still be fired. With the transistorized system, you can fire with a .050 inch gap which means you will have a clean engine, the greatest advantage of all.



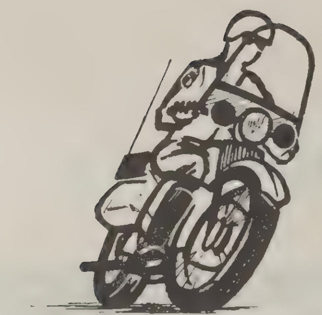
Sleptronic ignition system installed in vehicle.

Coil design is, of course, the key to the entire transistorized system. Sleptronic's F-12T is the link between the voltage available to ionize the spark plug and the voltage and current levels switched in the primary circuit by the transistor. The F-12T has a 250:1 turns ratio as compared with the conventional 100:1 coil.

Price of the entire transistorized ignition system, complete with F-12T coil, 6 and 12 volt models for negative ground — $44.95, positive ground — $59.95.

With all the combined advantages the Sleptronic Transistorized Ignition System has to offer, plus the combined savings on spark plug and point life, gas consumption, battery life, and engine repairs, return of original investment is virtually assured well within 10,000 miles.

Installation is simple and the unit can be as easily removed should the owner sell or trade vehicles. Complete systems are available via mail.



PUBLIC SAFETY
COMMUNICATIONS

by Robert E. Brooking, Communications Engineer — City of Burbank, California

THE CROWDED FREQUENCY SPECTRUM

On December 6 and 7, 1962, approximately 400 registrants from all parts of the United States and a number of foreign countries gathered at Anaheim, California, to attend the 13th National Conference of the Professional Group on Vehicular Communications, Institute of Radio Engineers.

The Conference is covered elsewhere in this issue; but worthy of note was the panel discussion on the subject of the Crowded Frequency Spectrum. The question and answer session lasted until after the 5 p.m. deadline and would have continued, time permitting. It was obvious that the primary problem of all of the Land Mobile Radio Services remains one of lack of spectrum space.

This very same week, the National Association of Broadcasters filed a statement in opposition to the petition of the Land Mobile Section of E.I.A. requesting reallocation of TV channels 14 and 15. NAB, calling for dismissal of the petition, stated: "Apart from any question of untimeliness, however, we suggest that more than bare allegations of need should be submitted before serious consideration may be given to any proposal to reallocate a part of the spectrum. While sheer numbers may sometimes be impressive, standing alone they are not in and of themselves sufficient to warrant the institution of rule making proceedings."

The NAB statement continued that the situation in which the Commission "has established, on a regular basis, seven different services in the public safety category, four in the land transportation group, a citizens radio service, and a domestic public radio service" is "not in the best interest of frequency conservation." NAB further makes the point that "an analysis of the traffic carried over most of these private systems would show that the primary purpose is to foster the more efficient administration of the industry with which they are associated," instead of "the protection of life and property." NAB adds that: "This should not be taken to mean that such use of radio is not in the public interest," but — "We do, however, believe that just as the common carrier telephone exchange service has proven adequate to meet the needs of the average American business over the years, so too will a common carrier radio exchange service if given the opportunity."

"In other words, we believe there should be a re-examination by the Commission of a policy that permits the almost endless development of land mobile use on a private unintegrated basis." Finally NAB suggests that "in lieu of attempting to satisfy the needs of the mobile users by piece-meal allocations, the Commission re-examine the concept of a 'broad-band' common carrier operation, in an effort to achieve a more permanent solution to the problem."

NAB, in raising the issue of "protection of life and property," goes back to the basic language in Section 1 of the Communications Act of 1934, which is quoted in part; "for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio-communication." The use of radio for administrative and general business purposes would come under the broad

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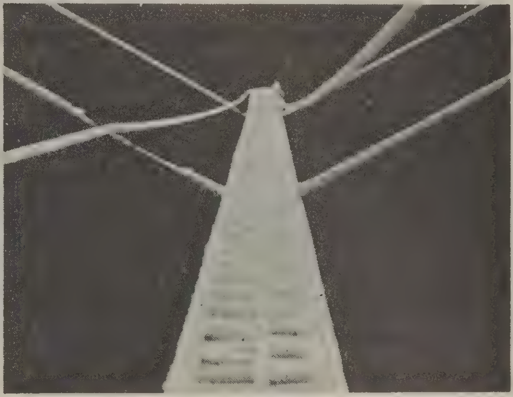
term, "in the public interest," but so, also, would Broadcasting and TV.

Perhaps the time has arrived when Congress must decide the relative importance of the various services using the radio spectrum. Certainly the general welfare of all the people of the United States is today dependent on the availability of the radio spectrum. Public entertainment is a very nice thing but it certainly should not hold priority such as it now does, to occupation of the spectrum. We have even seen efforts made to move communications vital to the national defense so that TV could have more VHF space.

It is time to call a halt and to consider what is necessary to the national security, the internal security and the general welfare of this nation and its people. Only after these things have been resolved should Broadcasting and TV receive consideration. As a result of the petition for reallocation of Channels 14 and 15 there has been a new interest created in Congress regarding the problems of the Land Mobile Services. It may well be that action by Congress will yet be necessary to resolve this problem.

ROHN TOWERS STAND THE TEST!

Heavy ice loading, coupled with high winds, is the severest of all tests for a tower. It PROVES sturdiness and sound engineering. Below is a ROHN Communication Tower that clearly withstood such a test.



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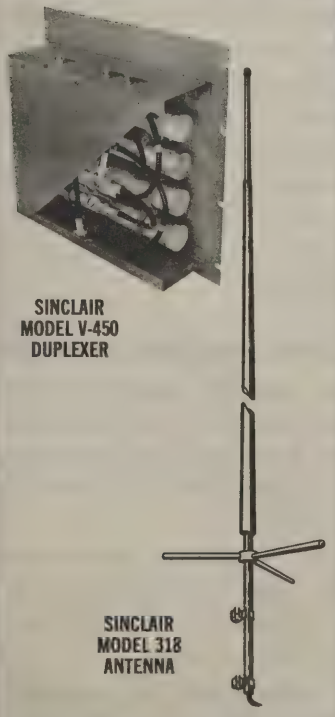

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SINCLAIR MODEL 318 ANTENNA

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A SINCLAIR V-450 DUPLEXER — the ultimate in quality Duplexers for the 450 Mc. band. Requires only 3 Mc. separation between transmitter and receiver . . . operates at a full 500 Watts for long range applications. Perfect for crowded metropolitan areas where U.H.F. frequencies have high penetration inside building and through other man-made obstacles.

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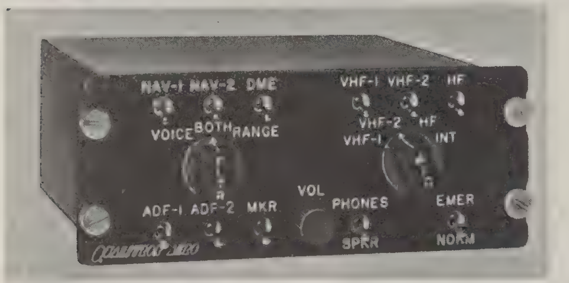


AIR-RADIO CONTROL PANEL

A miniaturized audio control panel for aircraft radio, suitable for installation in private, executive, and airline planes, has been announced by *Qualitron Aero, Inc.*, 2777 Hollywood Way, Burbank, Calif.

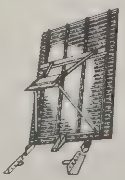
Designated as Model 62-401, the new unit has faceplate dimensions of 2-1/4 by 5-3/4 inches and is transistorized. It includes built-in isolation and cockpit speaker amplifers, and replaces a variety of audio equipment.

Operating features include 10 audio channels, both normal and emergency audio operation, master volume control, and switches to operate the mike, phones, speaker, and range filter. Weight is 1 lb. 11 ounces, and speaker output is 8 watts.

For additional data, write the manufacturer. Tell them we sent you.

RUGGEDIZED MICROWAVE REFLECTORS

Gabriel Electronics Corporation, Main Street, Millis, Mass., has announced development of a new type microwave passive reflector designed to provide maximum strength and stability while minimizing installation costs.



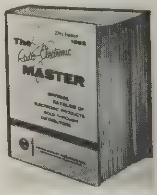
The new units, designated the KD series, are available in 4 x 6, 6 x 8, 8 x 12, and 10 x 15 foot sizes. Each features cross-plane reinforcement which avoids the excessive mass and weight problems usually inherent in such structures.

Instead of guy wires, steel stiff-arms with precision vernier adjustment are supplied for continuous and positive azimuth control. The structure will withstand more than 50 PSF loading and will meet 12 kMc face-flatness requirements.

For complete information and specifications, write Gabriel. Tell them who told you.

1963 MASTER CATALOG

The 1963 edition of the Radio-Electronic MASTER catalog is now available at most electronic parts distributors.



If you're familiar with the "Master," it's enough to say that this 27th edition is the largest ever published, and lists more than 185,000 items in its 1,680 pages. If you're not familiar with the publication, it is an industry-wide reference volume cataloging the products of 308 manufacturers, with products grouped by type rather than by manufacturer. A detailed index pinpoints the product.

A new feature of the 1963 edition is a Foreign Tube Interchangeability Guide, listing numerically over 1,300 foreign tubes and cross-referencing them to domestic replacements.

The 1963 MASTER is published by *United Catalog Publishers, Inc.,* 645 Stewart Avenue, Garden City, N.Y. If your distributor doesn't have it, a list of those who do is available from the publisher.

COMPACT OMNI-DIRECTIONAL ANTENNA

A compact, vertically polarized antenna for mobile or base use which offers height reduction as much as 50 to 1 has been announced by *Northrop Corporation's Ventura Division,* Van Nuys, Calif.

Known as a "directional discontinuity ring radiator," the new antenna has (in tests) equalled the performance of a 60-foot vertical with only two feet of height.

Production models will be designated as the "Omni-Slot" and will cover all mobile bands.

LET US KNOW ABOUT YOUR OWN MILESTONES

We'd like to have our Milestones department reflect not only the activities of the larger manufacturing firms, but also those of the **users** of non-broadcast radio. But to do this, we need your help. If you'll just take a few minutes to fill out this card, put a 5-cent stamp on the other side, and drop it in the mail, then Milestones can accurately reflect the activities of **your** people, too! Thanks!

Communication Report for the period ending February 1, 1963

From ________________________________

(Name — please print so we won't misread it)

Title ________________________________

Agency or firm ________________________________

Location ________________________________

New personnel in period (names, please) ________________________________

____

New test equipment installed ________________________________

New antennas installed ________________________________

New mobile units installed ________________________________

New base units installed ________________________________

New repeaters installed ________________________________

New systems installed ________________________________

for ________________________________

Current problems ________________________________

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Plans for next 30 days ________________________________

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Looking for information on ________________________________

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(Signed) ________________________________

Date ________________________________

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To: MILESTONES Editor
COMMUNICATION HORIZONS
P. O. Box 1557
Oklahoma City 1, Okla.

Typical size is shown by dimensions of their 27-Mc model: 27 inches in diameter by 3 inches high. Feed impedance is 50 ohms.

For full data and specifications, write the company and tell them you saw it in the CH Showcase.

UNBREAKABLE MOTORCYCLE WHIP

A new Mark Heliwhip (R) antenna designed to eleminate the problem of breakage in motorcycle whip antennas has been announced by *Mark Products Division,* Dynascan Corporation, 5439 West Fargo Avenue, Skokie, Illinois.

The new antenna, designated the LW-40, is made on a fiberglass core which withstands vibration without developing fatigue.

Designed for use in the 30-50 Mc band, the antenna can also be cut to operate in the 150 Mc region if desired. With slight mounting modifications, the LW-40 can be adapted for almost any cycle installation, the maker reports.

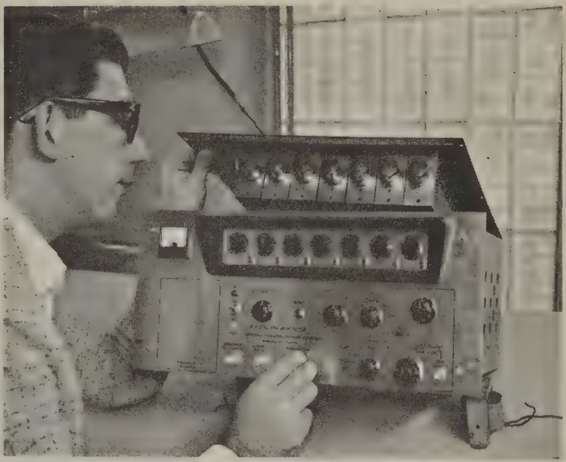
Further data and specifications may be obtained from the manufacturer.

NEW CATALOGS AND LITERATURE

Decibel Products, Inc., of Dallas, Texas, announces a complete new catalog covering their line of antennas, transmission lines, duplexers, and selective cavity filters. For your copy, write Fred McDaniel, sales manager, at 3184 Quebec, Dallas 7.

Communications Products Company, Division of Phelps Dodge Electronics Products Corporation, Marlboro, N.J., has released specification pages on several new Quality Line antennas. Included are several 150-Mc band units, a pair of 450-Mc yagi antennas, and a 950-Mc gain antenna. For your copy, write sales manager C. H. Davidson.

The Antenna Specialists Company, 12435 Euclid Avenue, Cleveland 6, Ohio, has issued a new catalog marking their entry into the amateur radio field. The 12-page catalog lists base and mobile antennas for the 30-54 Mc and 130-174 Mc regions — making it of interest to the two-way industry also. On page 11, a handy chart gives element cutting lenghts for both bands. For your copy write Bob Beebe.



DIGITAL FREQUENCY COUNTER

Early availability of the model CG-1 digital frequency counter has been announced by *General Radiotelephone Company,* 3501 West Burbank Blvd., Burbank, Calif.

The unit (fully described in the February 1962 issue of COMMUNICATION HORIZONS) features seven-place readout of unknown frequencies in the range from DC to 500 Mc without external adapter units. The photo shows CH Publisher Robert B. Cooper, Jr., inspecting a production unit during a visit to the General plant during the December PGVC conference.

For additional data, specifications, and price, write Charles Messenger, chief engineer, at General.

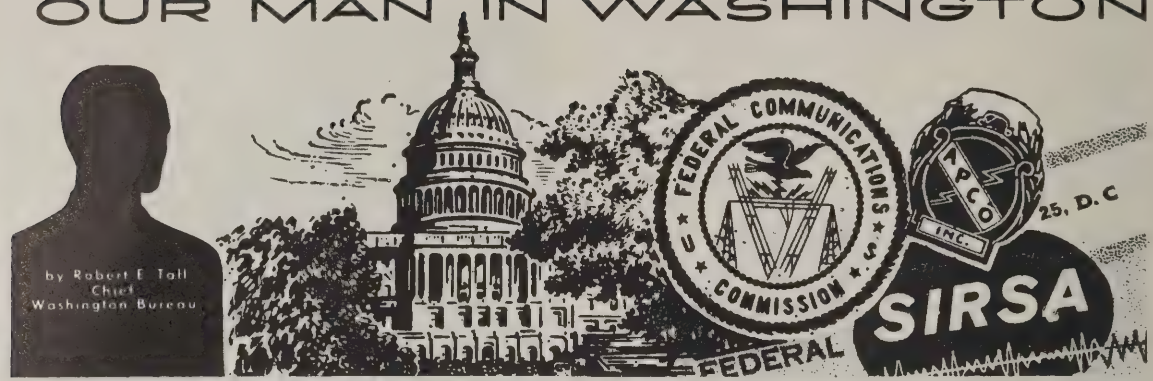
RFI HANDBOOK ANNOUNCED

A complete (more than 2,000 pages) handbook covering the entire field of Radio-Frequency Interference has been announced by *Frederick Research Corporation,* Wheaton, Md.

The publication consists of four volumes, covering Fundamentals of Electromagnetic Interference; Electromagnetic Interference; Prediction and Measurement; Methods of Electromagnetic Interference-Free Design and Interference Suppression; and Utilization of the Electromagnetic Spectrum.

Price of each volume is over $16 — not inexpensive but on the other hand not excessive for the complete data on the subject. We will have a comprehensive review of the series in a forthcoming issue; for additional data prior to the review, write the publisher.

OUR MAN IN WASHINGTON


FEDERAL COMMUNICATIONS COMMISSION ★ U ★ S ★
APCO INC.
25, D.C
SIRSA
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by Robert E Tall
Chief
Washington Bureau

SIRSA ASKS RAPID ACTION ON 1959 ALLOCATION REQUEST

The Special Industrial Radio Service Association, declaring that the Special Industrial Service is "gasping for its existence," asked the FCC for immediate consideration of SIRSA's 1959 request for 25 added frequency pairs in the 450-470 Mc region.

The petition asked the Commission to "sever" the 1959 request from the outstanding omnibus rule proposals involving the UHF band. SIRSA added that "an unreasonable delay is not in the public interest. Relief is urgently needed now."

DEADLINE EXTENDED ON CB RULES COMMENTS

Deadline for comments on proposed changes in Part 19 of the FCC's Rules and Regulations (those governing the Citizens Radio Service) has been extended to March 4 following a request by the Communications Equipment Manufacturers Association, newly formed CB industry group.

The rule proposals — docket 14843 — were issued in mid-November with a January 15 comment-deadline date.

CEMA asked extension of the date to April 30; the March 4 extension granted was a compromise measure.

More than 100 filings have already been received by the Commission; observers report they are split almost evenly between those favoring the proposed changes and those opposing them.

INCREASED MOBILE PHONE COVERAGE IS URGED

A new program by the U.S. Independent Telephone Association to encourage USITA members "to provide mobile radio services in their exchanges or areas" is under way.

Part of the program, a USITA spokesman said, involves development of typical specifications for mobile radio systems. Another part includes planning coordination with Bell System representatives to ensure a "comprehensive and feasible pattern for nationwide service."

Encouragement for such a program, it is understood, comes from the viewpoint that failure by telephone companies to take such action will result in MCC operators developing this service.

ONLY THREE REPLY COMMENTS FILED IN TV REALLOCATION

Formal "reply comments" in the UHF TV reallocation petition were submitted by only three parties — a notable contrast to the more than 1,300 comments filed initially.

Those filing replies were the Land Mobile Communications Section of the Electronic Industries Association (originator of the petition), the Association of Maximum Service Telecasters, and the National Educational Television and Radio Center.

The EIA section repeated its plea for an "open forum" under FCC auspices to consider "general and complete spectrum relief" for the land mobile services on all issues raised.

AMST dismissed the wave of support for the petition with the comment that "It is cogency, not bulk, which counts."

NET said it felt that the proposal does not "reflect the requisite public interest showing to justify serious Commission consideration."

No action by the Commission has been taken or indicated at presstime.

SIRSA ASKS RULES CHANGE

Rules changes to permit certain Special Industrial Service licensees to use their radio

THE MCM-5 WILL SAVE YOU TIME!

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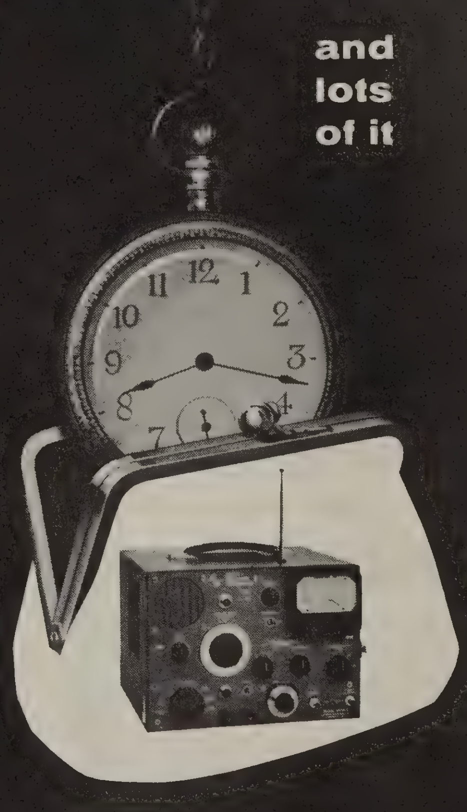
lots
of it



HERE'S HOW with the **MCM-5 MULTI-CHANNEL FREQUENCY MONITOR**, calculation, interpolation, and set-up time have been replaced with fast, simple, and accurate operation. Just select the channel—then measure frequency, deviation, or receiver sensitivity. Your specific channels (up to 23 between 25 and 1000 Mc.) are installed in one instrument. Calibration and service of your radio communications equipment ensure not only compliance with F.C.C. regulations, but also improve reliability and provide maximum performance from your equipment. Skilled or unskilled personnel can easily operate the **MCM-5**.

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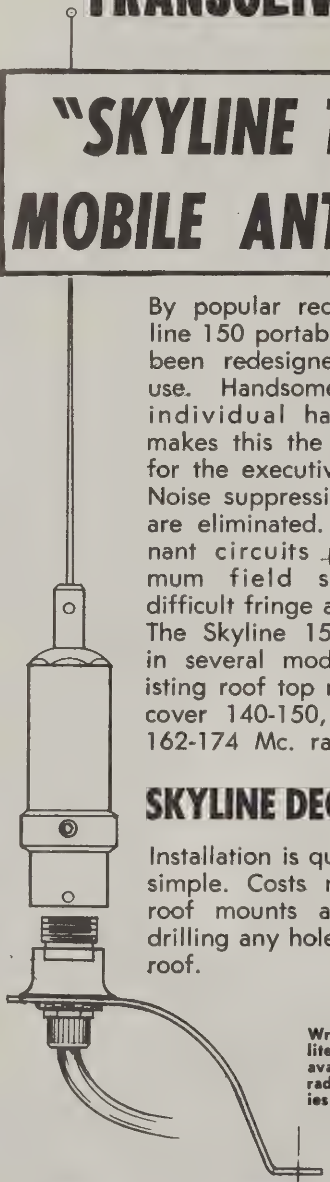

By popular request the Skyline 150 portable antenna has been redesigned for mobile use. Handsome styling and individual hand calibration makes this the ideal antenna for the executives car.
Noise suppression and flutter are eliminated. Tunable resonant circuits provide maximum field strength for difficult fringe areas.
The Skyline 150 is supplied in several models to fit existing roof top mounts and to cover 140-150, 150-162 and 162-174 Mc. ranges.

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systems for previously excluded activities have been asked by SIRSA.

The purpose of the requested revisions is twofold: One is to enable those licensees whose prime eligibility is as operators of farms for the quantity production of crops or plants to communicate with vehicles engaged in gathering and processing agricultural products grown for them by others. The second is to allow "deliverers of ice and fuel" to use their radio facilities "in connection with the servicing of customers' equipment that uses the products delivered."

Comments have been invited before February 5 from any interested parties.

RAILS ASK MICROWAVE USE FOR PUBLIC TELEGRAMS

The Association of American Railroads has petitioned for a rules change to permit use of railroad microwave systems for transmission of public telegrams in a manner similar to that done for years with railroad wire lines.

The AAR pointed out that such wire line use has been in effect for "100 years or more" at some locations, and added that at such stations wire lines cannot presently be replaced by microwave solely due to rules provisions. The only other alternative would be to remove public telegraph service from such areas.

APCO ASKS FORMAL INQUIRY OF PUBLIC SAFETY NEEDS

A petition asking initiation of a "formal inquiry" into present and future requirements of the nation's public safety agencies has been filed with the FCC by Associated Public-Safety Communication Officers, Inc.

The 20-page petition declared that present public safety frequency allocations are "no longer adequate," and said the situation is "so serious" that the matter must be brought to the attention of the Commission.

APCO pointed out in the petition that it does not want the Commission to take the word of public-safety users that additional frequencies are necessary, since the organization feels that it is the "joint responsibility" of the federal government and the users to determine the exact needs.

A "clear and growing need" for action was cited, and the Commission was asked to devote time and resources to the study in a manner similar to that used in the recent New York City UHF TV tests.

25-42 Mc CHANNEL SPLIT REPLY COMMENTS SPLIT TOO

Reply comments filed in the 25-42 Mc channel split proposals — outstanding since last spring — showed a deep split among users themselves in their desires for action to be taken.

Public-safety organizations presented a solid front in asking that the Commission "hold in abeyance" any further action in this docket "pending an overall review of public safety radio frequency requirements" while special industrial users offered strong insistence that the FCC "brook no further delays" and "find an acceptable ground on which to finalize this proceeding immediately."

Several users requested that the Commission hold oral argument on the proposals.

No action on the docket had been taken at presstime.

NMRS—MEMBER HAM NETWORK CHANGES MEETING TIME

Meeting time of the amateur-radio network composed of National Mobile Radio Service members has been rescheduled to 7 p.m. Central Standard Time each Wednesday, reports net control operator Ralph Hicks, Tulsa, Okla. The net is CW, and operates on 3610 Kc.

FCC MONITORS REPORT 150 PUBLIC SAFETY VIOLATIONS

In an interim report on the concentrated rule enforcement program now under way in the Public Safety Service, FCC monitors noted 150 violations spotted during inspection of 206 stations — nearly 75 percent!

Stations inspected included 80 police, 30 fire, 14 forestry-conservation, 21 highway maintenance, 41 special emergency, and 20 local government stations.

Most frequent violation involved rule section 10.161—content of station records. This tripped up 68 stations. Next in line, with 33 violations, was section 10.157—posting station licenses and transmitter identification cards or plates.

Other rules violations found included lack of proper operating authority; changes in authorized stations; transmitter control requirements; transmitter measurements; operator requirements; posting of operator licenses; form of station records; frequency stability; and two cases of improper station identification.

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Meets all government requirements and more! Users say: "We couldn't get along without it."

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LOGBOOK

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A CALENDER OF IMPORTANT MEETINGS AND EVENTS OF INTEREST TO MOBILE COMMUNICATIONS.

Jan. 22-23—Meeting of Four-State Chapter of Associated Public-Safety Communication Officers. Jersey City, N.J.

Jan. 31-Feb. 1—Meeting of Communications Committee of Pennsylvania Electric Assn. Pick-Roosevelt Hotel. Pittsburgh, Pa.

Feb. 5—Comment deadline on FCC special industrial radio service rule proposals which would permit section 11.501 (a) and 11.501(d) (7) licensees to use their radio systems for previously excluded activities.

Feb. 15—Comment deadline on FCC proposals (docket 14895) to govern the grant of authorizations in the business radio service for microwave stations to relay TV programs to community antenna TV systems.

Apr. 1—Persons operating in the special industrial radio service on frequencies previously available for assignment in the service, but which are no longer available for assignment in the service, must switch frequencies.

June 4—Annual meeting of National Petroleum Radio Frequency Coordinating Association. Statler Hotel. Washington, D.C.

June 5-6—Semi-annual meeting of American Petroleum Institute Central Committee on Communications Facilities. Statler Hotel. Washington, D.C.

JUNE 15—Persons previously eligible in the special industrial radio service, who received licenses prior to June 15, 1958, but no longer eligible, must transfer to other radio services in which they are eligible.

June 18-21—Annual meeting of National Committee for Utilities Radio. Jung Hotel. New Orleans, La.

Aug. 13-16—National APCO Conference. Leamington Hotel, Minneapolis, Minn.

Oct. 31—Mobile radio users must meet full narrow band technical standards of FCC.

Nov. 1—Fire radio systems must move off frequencies allocated to the police radio service.

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- Masters other vehicle's ignition noise!
- Masters power line noise!
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USER NET PRICE $42.50
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Exemption Certificate must accompany order for deduction to apply.
Prices include prepaid surface transportation to Continental U.S.A. destinations.
Applicable State and Local taxes will be additional.

Advise Receiver, Make, Model, 1st I.F. frequency and receiver filament voltage (6 or 12 volt) — specify for base station or mobile unit.

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MILESTONES

PEOPLE, PLACES, AND THINGS
IN THE NEWS

Andrew F. Inglis, long-time *RCA* executive, has been appointed division vice president, communications products operations, in RCA's Broadcast and Communications Products Division. The newly-created position carries responsibility for mobile communications, radiomarine, and audio-visual products.

The consolidation of engineering, production, and marketing activities for these products under Inglis recognizes RCA's growth in these product areas and its plans to broaden the markets they represent, said C. H. Colledge, division vice president and general manager, in announcing the appointment. Products involved include mobile two-way equipment, navigation and communications equipment for all types of marine craft, and a line of A-V gear for educational and other applications.

Inglis has held a number of posts with the division since joining RCA in 1953. Most recently he has been manager, broadcast merchandising and engineering department.

From New Bedford, Mass., comes word that Isidore Eisner, production and control manager of *Aerovox Corporation's* New Bedford Division has been elected president of the 3,000-member American Production and Inventory Control Society. He assumed his new duties on January 1.

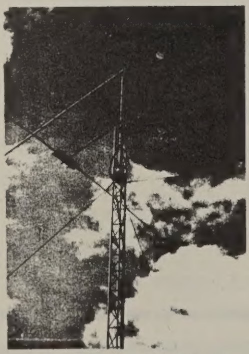
Andrew Corporation announced appointment of Alfred Holtum as chief of its Antenna Design Group, succeeding Dr. Richard Yang. Dr. Yang left to join the faculty of the Illinois Institute of Technology, but will continue with Andrew on a part-time basis.

Holtum has been with Andrew since 1957, when he joined the firm as chief engineer of its California affiliate. In October, 1961, he was transferred to Andrew's main offices in Chicago to head the company's Government Research and Development Department. He holds a B.A. and M.S.E.E. degree, and is a senior member of IRE. He has authored numerous technical articles, and is active in the Professional Group of Antenna and Propagation and Microwave and Theory.

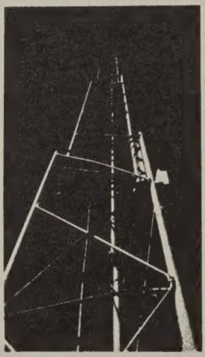
In Lynchburg, Va., Herbert E. Reynolds has been named carrier sales manager for the *General Electric Communication Products Department's* telecommunication and microwave sales organization. A veteran of more than two decades in the communication industry, Reynolds will have general responsibility for promoting and guiding sale of G-E's transistorized carrier equipment TCS-600.

Fred Ohman has been appointed distributor sales manager for the electronic division of *New-Tronics Corporation,* Cleveland, Ohio, antenna producers. He had been sales engineer for the firm, covering the north central section

TOWERS



GUYED TOWERS



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of the nation. In his new position Ohman will work with New-Tronics sales reps and distributors in developing new merchandising and selling programs.

Across the country, several items of note occurred this month. *Kaar Engineering Corporation,* headquartered in Palo Alto, Calif., since its founding 27 years ago, announced plans to move its assembly operations to Ukiah, Calif., early this year. Charles C. Bowen, executive vice president, explained that the move was brought about by ready availability of labor, better living conditions, and some economies in operation. Ukiah is the location of Klamath Machine and Locomotive Works, a Kaar affiliate.

Main office administration, sales, and engineering, as well as other manufacturing operations, will remain in Palo Alto at 2995 Middlefield Road.

Norman Ackerman, general sales manager of *Perma-Power Company,* announced appointment of Technical Sales Associates, 1485 Bayshore Blvd., San Francisco 24, as Perma-Power representative for Northern California.

Perma-Power produces garage door openers, radio remote control system components, and audio equipment. All will be handled by the new representatives.

In the systems and technical area, we note that the *State of Wisconsin's Conservation Department* forest protection headquarters has just installed 63 new mobile units, 5 base stations, and four new repeaters. To help maintain the new system, three Dumont 5890's and a batch of miscellaneous test equipment was also added. H. J. McGinnis advises that this achievement represents 6 months' work, and is only part of one new system.

Corley Radio, of Trinidad, Colo., reports installation of eight new Motorola Motrac units and two base stations, plus one Decibel DB286 direction antenna, in late fall.

Motorola's Communications Division announced two new mobile system contracts had been received, as well as one microwave system.

Larger of the two mobile systems is the 213-mobile plus two base array ordered by the City of Minneapolis to replace present facilities of the police and engineering departments. Some 130 of the mobiles will be installed in squad cars, while the rest will be in engineering vehicles. Four frequencies will be employed.

The other system is a city-wide network to coordinate traffic control and inspection in New York City, ordered by the city's Department of Traffic. It will include 200 mobiles, six 20-watt base stations for maintenance shops, and two 250-watt base/repeater stations. The system will cover all five boroughs, and will operate in the 450-470 Mc band. Two frequencies will be used.

The microwave network is for the Arizona Public Service Company, to link the firm's dispatch headquarters in Phoenix with the Cholla Power Plant in northern Arizona, the Four Corners Power Plant in northwestern New Mexico, and a major power substation located northeast of Phoenix.

To be completed by the end of this year, the network will cover some 350 miles with four mountain-top repeaters (on Signal Peak, Green's Peak, Cousins, and Chuska).

The system will provide 66 channels, ten of them voice grade. Equipment used has a 600-channel capacity. ■

Splatter ....from p. 1

on the number of licenses each carrier could control. The function of these carriers would be to draw frequencies from a pool to serve the many thousands of miscellaneous businesses having no desire, or need, for their own licenses.

"Is this palatable, or would you prefer to slough the future to the telephone industry?

"Manufacturers, users, salesmen and servicemen: the opportunity is NOW! Find yourselves regional representatives in each area. Give them frequency coordinating duties. Make it possible for them to tell the free-enterprise story to each and every licensee. Gradually prove to the Commission, and to others, that the industry *can* make efficient use of its spectrum. With unity and purpose, prestige will come to a National Association and perhaps make possible the dumping of "I don't care" licensees into pools and the creation of real common carrier opportunities for your own people

—Theodore Merrill."

I'll be waiting to hear the reactions. What's *your* idea? **—jk**

AMBITIOUS TECH WRITER?

Horizons Publications, Inc., has recently opened a new-expanded Research and Development Laboratory in Oklahoma City.

One of the primary functions of the new HP Lab is environmental testing of new communications equipment and antennas.

Director of the Lab is Communication Horizons Editor Jim Kyle, who also serves as our new Vice President in charge of Research and Development.

VP Kyle is searching for just the right man to work with him in the growing lab facility. The person we want is young, mature, capable of expressing himself well in print and in person, and knowledgeable in fields of two-way communications including point-to-point microwave and video engineering.

He is between 23 and 28 years of age, with considerable experience in communication systems check out and make ready.

We want a man willing to grow with a growing company interested in the future as well as the present. A First or Second Class License and an Amateur Radio license will be helpful although not required.

Reply in confidence outlining your own qualifications. experience, and needs, including a short paper describing how you feel you would fit into the Horizons family, with a recent photograph to:

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- Superior to the magneto ignition system at less cost
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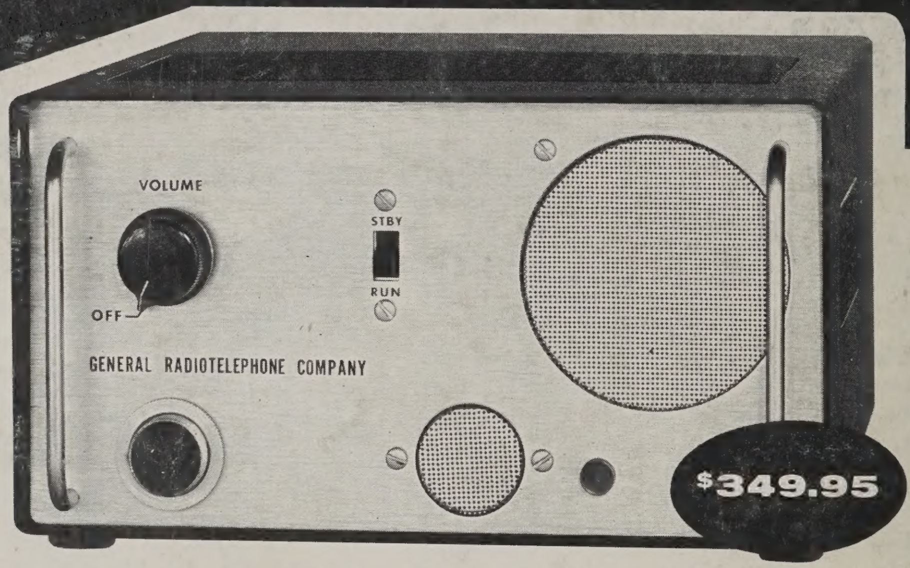

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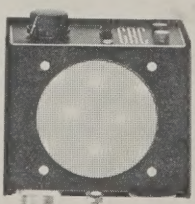

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